

WHAT IS CLAIMED IS:

1. A method for management of directly connected optical components, comprising:

receiving a source optical signal for communication
5 to an optical network, the source optical signal comprising one or more source channels;

monitoring optical traffic communicated on the optical network to determine one or more network channels in which the optical traffic is communicated;

10 determining network channel information of the one or more network channels; and

communicating to the optical network channels of the one or more source channels that do not interfere with any of the one or more network channels and preventing
15 from communication to the optical network channels of the one or more source channels that interfere with any of the one or more network channels.

2. The method of Claim 1, further comprising
20 blocking from communication to the optical network any of the one or more source channels that interfere with any of the one or more network channels.

3. The method of Claim 2, wherein blocking from
25 communication to the optical network any of the one or more source channels that interfere with any of the one or more network channels comprises controlling one or more filters to block from communication to the optical network any of the one or more source channels that
30 interfere with any of the one or more network channels.

4. The method of Claim 3, wherein controlling one or more filters to block from communication to the optical network any of the one or more source channels that interfere with any of the one or more network
5 channels comprises tuning one or more tunable filters.

5. The method of Claim 1, further comprising switching the one or more source channels to a channel monitor to determine source channel information of the
10 one or more source channels.

6. The method of Claim 5, further comprising determining from the network channel information and the source channel information whether any of the one or more
15 source channels interferes with any of the one or more network channels.

7. The method of Claim 6, further comprising controlling one or more optical switches to communicate
20 to the optical network channels of the one or more source channels that do not interfere with any of the one or more network channels.

8. The method of Claim 5, wherein the source
25 channel information of the one or more source channels comprises identification of wavelengths associated with the one or more source channels.

9. The method of Claim 1, wherein the network
30 channel information of the one or more network channels comprises identification of wavelengths associated with the one or more network channels.

10. A system for management of directly connected optical components, comprising:

an in-service monitor coupled to an optical network, the in-service monitor operable to:

5 monitor optical traffic communicated on the optical network, the optical traffic comprising one or more network channels;

 determine network channel information of the one or more network channels; and

10 communicate the network channel information to a network control coupled to the in-service monitor;

 one or more filters coupled to a source and to the network control, each filter operable to:

15 receive one or more source channels of a source optical signal; and

 block from communication to the optical network one or more of the received one or more source channels; and

20 the network control operable to control the one or more filters to block any of the one or more source channels that interfere with any of the one or more network channels.

11. The system of Claim 10, wherein:

25 the one or more filters comprise one or more tunable filters; and

30 the network control is operable to tune the one or more tunable filters to block any of the one or more source channels that interfere with any of the one or more network channels.

12. The system of Claim 10, wherein the network channel information of the one or more network channels comprises identification of wavelengths associated with the one or more network channels.

13. A system for management of directly connected optical components, comprising:

an in-service monitor coupled to an optical network, the in-service monitor operable to:

5 monitor optical traffic communicated on the optical network, the optical traffic comprising one or more network channels;

 determine network channel information of the one or more network channels; and

10 communicate the network channel information to a network control coupled to the in-service monitor;

 a channel monitor coupled to the network control, the channel monitor operable to:

 receive one or more source channels of a source
15 optical signal;

 determine source channel information of the one or more source channels; and

 communicate the source channel information to the network control; and

20 the network control operable to:

 determine from the network channel information and the source channel information if any of the one or more source channels interferes with any of the one or more network channels; and

25 communicate to the optical network channels of the one or more source channels that do not interfere with any of the one or more network channels.

14. The system of Claim 13:

30 further comprising one or more optical switches, each optical switch operable to:

receive a respective channel of the one or more source channels; and

switchably communicate the respective channel to either the channel monitor or the optical network; and

5 wherein the network control is operable to control the one or more optical switches to communicate to the optical network channels of the one or more source channels that do not interfere with any of the one or more network channels.

10

15. The system of Claim 13, wherein the source channel information of the one or more source channels comprises identification of wavelengths associated with the one or more source channels.

15

16. The system of Claim 13, wherein the network channel information of the one or more network channels comprises identification of wavelengths associated with the one or more network channels.